

SECTION III—REMARKS

This amendment is submitted in response to the Office Action mailed June 2, 2005. No claims are amended herein, and claims 1-24 remain pending in the application. Applicants respectfully request reconsideration of the application and allowance of all pending claims in view of the above amendments and the following remarks.

Specification Objections

The Examiner objected to the specification because of a number of informalities. Specifically, at page 2, lines 8-9, the Examiner pointed out that the text refers to supports 114, whilst the drawings show supports. At page 6, line 5, the Examiner pointed out that the text refers to support layer 302 that is not shown in the drawings. The Examiner required correction of these informalities.

As to the Examiner's first objection, Applicant has amended the paragraph beginning at page 2, line 3, to replace reference numeral 114 with reference numeral 112 so that the text matches the drawings. Applicant submits that this overcomes the Examiner's objection.

As to the Examiner's second objection, Applicant respectfully directs the Examiner's attention to Figure 3B, where the support layer is labeled with the reference numeral 302 that appears immediately to the right of the figure label "Fig. 3B." Applicant submits that the Examiner's rejection is moot in view of the appearance of reference numeral 302 in Figure 3B.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 1-24 under 35 U.S.C § 103(a) as obvious in view of, and therefore unpatentable over, U.S. Patent No. 6,507,093 to Kameda et al ("Kameda") in

view of Applicant's allegedly admitted prior art. Applicant respectfully traverses the Examiner's rejections. To establish a *prima facie* case of obviousness, three criteria must be met: (1) the prior art references must teach or suggest all the claim limitations; (2) some suggestion or motivation to combine the references must be found in the prior art; and (3) there must be a reasonable expectation of success. MPEP § 2143. As explained below, Applicant respectfully submits that the Examiner has not established a *prima facie* case of obviousness.

Claim 1 recites an apparatus combination including a film bulk acoustic resonator (FBAR) comprising a piezoelectric membrane having a portion thereof sandwiched between a first electrode and a second electrode, the piezoelectric membrane being suspended from at least two edges thereof, and a heat transfer layer "placed on the piezoelectric membrane surrounding, but not in contact with, the first electrode." Applicant's allegedly admitted prior art disclosed an FBAR, but does not disclose that the FBAR includes a heat transfer layer. Kaneda discloses a lead frame 1 that includes a heatsink 5 on which a semiconductor pellet 9 is mounted. The semiconductor pellet 9 is connected to electrodes 7 and 8 via wires 10 and 11. The electrodes 7 and 8 are on a different part of the lead frame 1 than the heatsink, and both are separate from the heatsink 5. Kaneda therefore does not disclose, teach or suggest that the heat sink 5 surrounds the electrodes 7 and 8, and the combination of Applicant's allegedly admitted prior art and Kaneda therefore cannot disclose, teach or suggest a combination including a heat transfer layer "surrounding, but not in contact with, the first electrode."

In addition to not disclosing every element and limitation of the claim, Applicant's allegedly admitted prior art and Kaneda do not provide any motivation for the combination

attempted by the Examiner. Kaneda discloses that the heatsink 5 functions as a base upon which the semiconductor pellet 9 is mounted, but it does not disclose that the heatsink 5 forms any part of the semiconductor pellet. Moreover, even if the semiconductor pellet 9 included an FBAR—which Kaneda does not disclose and Applicant does not admit—there is no disclosure whatsoever in Kaneda about what part of the semiconductor pellet 9 is mounted to the heatsink 5. There can therefore be no motivation for combining the two references to obtain an FBAR combination including a heat transfer layer “placed on the piezoelectric membrane surrounding, but not in contact with, the first electrode.” For the above reasons, Applicant submits that claim 1 is not rendered obvious by Applicant’s allegedly admitted prior art and Kaneda and respectfully requests withdrawal of the rejection and allowance of the claim.

Regarding claims 2-8, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 1 is in condition for allowance. Applicant respectfully submits that claims 2-8 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicant therefore respectfully requests withdrawal of the rejections and allowance of these claims.

Claim 9 recites an apparatus combination including a plurality of coupled film bulk acoustic resonators (FBARs) on a piezoelectric membrane, each FBAR comprising a portion of the piezoelectric membrane sandwiched between a first electrode and a second electrode, and “a heat transfer layer placed on the piezoelectric membrane surrounding, but not in contact with, the plurality of first electrodes.” By analogy to the discussion above

for claim 1, Kaneda and Applicant's admitted prior art, taken together, cannot obviate this claim because they do not disclose, teach or suggest every element and limitation of the claim. Applicant submits that claim 9 is therefore allowable and respectfully requests withdrawal of the rejection.

Regarding claims 10-16, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 9 is in condition for allowance. Applicant respectfully submits that claims 10-16 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicant therefore respectfully requests withdrawal of the rejections and allowance of these claims.

Claim 17 recites a system combination including an FBAR coupled to the signal source, the FBAR comprising a piezoelectric membrane having a portion thereof sandwiched between a first electrode and a second electrode, the piezoelectric membrane being suspended from at least two edges thereof, and "a heat transfer layer placed on the piezoelectric membrane surrounding, but not in contact with, the first electrode." By analogy to the discussion above for claim 1, Kaneda and Applicant's admitted prior art, taken together, cannot obviate this claim because they do not disclose, teach or suggest every element and limitation of the claim. Applicant submits that claim 17 is therefore allowable and respectfully requests withdrawal of the rejection.

Regarding claims 18-24, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 17 is in condition for

allowance. Applicant respectfully submits that claims 18-24 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicant therefore respectfully requests withdrawal of the rejections and allowance of these claims.

Conclusion

Given the above amendments and accompanying remarks, all claims pending in the application are in condition for allowance. If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to allowance of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

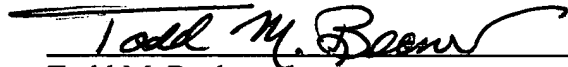
Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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Date: 9-2-05



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